

New Hampshire Coastal Program/New Hampshire Estuaries Project

# Tidelines

Megan Shannon  
Barrington Middle School, Grade 5

Fall 2002

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Planning

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Editorial Policy: We accept  
articles and photographs  
that are informative and  
have a story format. All must  
pertain to New Hampshire.



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# Manager's Musings

By Dave Hartman

## A Great Big Thank You to Cynthia Lay McLaren.

Cynthia came to the Office of State Planning as the outreach coordinator for the NH Coastal Program in 1997. After three years of outstanding work in that position, Cynthia became the first NH Estuaries Project Director. Now, Cynthia is heading to the land down under with her husband, Bruce.

To make this new program work, Cynthia learned the pieces of program management, not to mention getting the Management Plan finalized. She coordinated many efforts by individuals and organizations in New Hampshire's seacoast to make things better for our coastal community. Cynthia has left us with a good sense of where we are going. We will miss her. We wish her well and trust our paths will cross somewhere in the future. Thanks, Cynthia.

## Christina Altimari Works on Coastal Program Boundary Change



Intern Christina Altimari has joined the Coastal Program staff for four-months to assist with the extension of the Coastal Program boundary. The boundary as

originally drawn incorporates only a thin margin of land adjacent to the tidal waters in New Hampshire's seventeen coastal communities. The boundary also includes all the submerged lands of our estuaries and ocean out to the three-mile territorial limit.

We want to extend the boundary landward to include the geographic area of the seventeen towns and cities in the Coastal Program. This could make funding assistance more readily available for projects anywhere within those cities and towns.

Christina is nearing completion of a Master's Degree in Marine Affairs at the University of Miami. Her graduate course work focused on coastal law and policy, as well as coastal zone management.

## Mandy Locke Plans The 15th Annual Coastal Clean-up



Intern Amanda (Mandy) Locke has been assisting in our preparation for the annual Coastal Clean-up and Coastweeks activities. This job involves the usual pulling together of lists of volunteers, volunteer coordinators and beaches to clean. Come September 21st, the day of the clean-



up, Mandy and we will all breathe a collective sigh of relief that the clean-up went well. We will measure our success by the thousands of cigarette butts collected and tons of trash removed from the shore.

Mandy will also assist with other educational and outreach projects throughout her internship.

Mandy is attending graduate school at Antioch New England where she will receive her Master's of Science in Environmental Studies with a certification in teaching.

### **Senator Gregg Sponsors Coastal and Estuarine Land Protection Bill**

On the Federal front, Senator Judd Gregg has teamed up with Senator Hollings of South Carolina as the prime sponsors of the Coastal and Estuarine Land Protection bill. Other New England sponsors of the legislation include Senators Snowe (ME), Kerry (MA)

and Reed (RI).

The bill would amend the Coastal Zone Management Act by creating a new competitive grants program to protect important coastal and estuarine areas that have significant conservation, recreation, ecological, historical or aesthetic values and that are under threat by conversion to a development use. Fifteen percent of the funding would be directed to land acquisitions within the National Estuarine Research Reserve system. The bill would also authorize the Secretary of Commerce to conduct a regional watershed demonstration project. It would leverage an equal share of land acquisition funding from other federal agencies, involve a broad spectrum of partners, create conservation corridors and preserve unique habitat. It would focus on protecting those lands under imminent threat of development and protect the water quality of areas such as New Hampshire's Great Bay National Estuarine Research Reserve.

## *Grant Opportunity*

Every year the Coastal Program hosts a competitive grants round. Funded projects include coastal resource planning and management, education and outreach, construction and acquisition. This year special emphasis is on restoration projects. In January, we will be looking for applications that deal with tidal wetland, anadromous fish and eelgrass restoration. The match requirements for these particular projects

are flexible. To discuss your idea with us prior to January, contact Ted Diers at 603-271-2155. For an application, visit us on-line at [www.state.nh.us/coastal](http://www.state.nh.us/coastal).



## Volunteers Help Revegetate Awcomin Marsh

By Jen Drociak, NHEP Restoration Specialist

On June 17th and June 26th, approximately 30 volunteers, scientists and resource managers re-vegetated Awcomin Marsh in Rye with native plants. This marsh is undergoing a 24-acre restoration effort including the removal of *Phragmites australis*, otherwise known as Common Reed. Common Reed is a dominant plant in and around coastal wetlands and flourishes where tidal flow is diminished by human

impacts or where fresh water inundates salt marshes.

The New Hampshire Coastal Program (NHCP) and the University of New Hampshire's Jackson Estuarine Laboratory (JEL) are spearheading this restoration effort. Volunteers will not only restore this marsh back to its native state, but will learn quite a bit about current restoration methods.



There are currently three goals for the project:

- To facilitate marsh-revegetation over a substantial area (approx-

## NH Coastal Program Competitive Grant Recipients Announced

By Dave Murphy, NHCP Grants Coordinator

The New Hampshire Coastal Program offers several financial opportunities for local communities, non-profit organizations, state agencies, public school districts and research institutions. These grant opportunities most often require a match and have eligibility requirements. The nature of the grant program determines the types of projects funded. There are two types of grant programs:

### I. TECHNICAL ASSISTANCE

**GRANTS:** These grants are made available to Rockingham Planning Commission in Exeter and Strafford Regional Planning

Commission in Dover. The assistance allows the planning commissions to provide professional planning services to their member coastal communities.

**II. COMPETITIVE GRANTS:** These grants include but are not limited to

- Coastal resource planning/management
- Coastal education and outreach
- Construction/acquisition projects

Grant applications are available in October of every year and due mid-January. Funded projects are conducted between July 1 of that year and June 30 of the following year.

Download the Grant Application at [www.state.nh.us/coastal](http://www.state.nh.us/coastal)

### 2002-2003 GRANT RECIPIENTS

***Aquaculture Education and Research Center (AERC) -***  
Aquaculture Program  
Development: Phase II - Grant  
Request: \$50,000 (Total cost: \$101,762): AERC will produce two classroom curriculum guides and pilot test them, develop a conceptual plan for a traveling outreach center, research the potential for restoring the tomcod market, and purchase new aquaculture library materials.



mately 6 acres).

- To use and evaluate different revegetation techniques and evaluate the success of each.
- To use volunteers in revegetation activities to teach tidal habitats, and inform the public of restoration needs and efforts.

Volunteers used four different methods including:

- **Bare Control Plots:** These plots were left unplanted. Restored hydrology and nearby vegetation may be enough to encourage native saltmarsh vegetation to establish naturally.

- **Bare Root Seedling Plots:** These plots were planted with *Spartina alterniflora* (Saltmarsh Cordgrass) that had bare root systems.

- **Plugs:** These plots were planted with intact roots and soil of *Spartina alterniflora* collected from a 1993 excavation site. These plants have survived at the most stressful location and will easily adapt to new sites.

This fall, *Salicornia europaea* (Common Glasswort) seed heads will be collected from nearby marshes, planted at Awcomin Marsh, and covered with jute. This



type of revegetation planting has not been done in New Hampshire before.

For more information, contact Cathy Bozek (JEL) at 603-862-2175 or [cbozek@cisunix.unh.edu](mailto:cbozek@cisunix.unh.edu).

***New Hampshire Fish and Game Department - Coastal Fish and Wildlife Resources Outreach -***

Grant Request: \$18,030 (Total cost: \$36,060): Fish and Game will develop two articles on coastal resources which will appear in the "New Hampshire Wildlife Journal" and two video magazine-style segments to be broadcast on NH Public Television.

***City of Portsmouth - Peirce Island Shoreline Stabilization and Trail Project -***

Grant Request: \$100,000 (Total cost: \$220,000): The city will stabilize approximately 1,100 feet of the northern shoreline of Pierce Island to arrest soil runoff and sedimentation to the Piscataqua River, and will construct approximately 3,300 feet of stonedust path and three waterfront overlooks to improve public access on the Island.

***Seacoast Science Center, Inc. - Coastal Resources Environmental Education Program -***

Grant Request: \$8,504 (Total Cost: \$17,008): The Seacoast Science Center will develop and offer education programs to the general public that will focus on: the Great Bay estuary, rocky shores, salt marshes, the Gulf of Maine, water quality, and fish and wildlife management.

***UNH Sea Grant/Great Bay Coast Watch - Water Quality/Phytoplankton Monitoring***

- Grant Request: \$13,132 (Total cost: \$26,264): Great Bay Coast Watch will conduct volunteer monitoring at six sites located along the Atlantic Ocean coastline and in the Great Bay and Hampton/Seabrook estuaries to check for the presence of potentially toxic phytoplankton species.

***Cocheco River Watershed Coalition (CRWC) - Stream Assessments and Water Quality Monitoring in the Cocheco River Watershed -***

Grant Request: \$4,550 (Total cost: \$9,150): The Coalition will gather data through bi-weekly volunteer water quality monitoring and stream surveys in the Cocheco River Watershed within the coastal communities of Rollinsford and Dover, which will eventually be used to develop a watershed management plan.

\*The NHCP is currently submitting six other projects to the National Oceanic and Atmospheric Administration to be included in this grant round. Accepted projects will be announced at a later date.



## *NROC Promotes Natural Resource-Based Planning in Dover*

Joyce El Kouarti, freelance writer and 'Growing Greener' Workshop Series Co-Coordinator



Dover's City Hall was filled with energy when NROC came to town. The room was packed with more than 60 concerned citizens, local board members, and City officials, all there to see the first Natural Resource Outreach Coalition (NROC) public meeting on "Dealing With Growth in Dover." NROC presenters addressed issues of sprawl, habitat fragmentation, water supply protection and non-point source pollution - all tied to data and examples from Dover. The presentation was eye opening, but it was the maps of Dover featuring the city's natural resources and potential build-out that brought the message home. One picture is worth 1,000 words, and the impact of five Geographic Information System (GIS) maps was tremendous. By the end of the meeting, the overall mood was one of excited anticipation. Something positive was happening to address growth in Dover, and every person in the room knew it.

The seeds that NROC planted at that September 19th meeting fell into fertile soil. In 1999-2000, the City of Dover had revised four chapters of the community's Master Plan, calling for renewed efforts to protect the City's natural resources. One recommendation involved the creation of the Open Lands Committee to identify and prioritize the com-

munity's remaining undeveloped land parcels that should be protected. In November 1999 the City Council established a Conservation Fund to direct the Change of Land Use fees collected by the City for the specific purpose of preserving conservation lands.

Dover Conservation Commission Chairman Tom Fargo recognized the need to increase public involvement in the City's efforts to protect wildlife habitat, water resources, and the other significant conservation features outlined in the Master Plan. In the fall of 2000, Tom approached NROC for assistance, and by March 2001, Dover's application for inclusion in the "Dealing With Growth" program had been accepted.

"NROC has been very helpful in generating public interest in smart growth and natural resource protection initiatives in Dover," says Fargo. "It is clear that this message is resonating with the people of Dover. Continuing assistance from the NROC partners not only facilitated the very successful 'Growing Greener' seminar series, but also carried over into ongoing Planning Board efforts to manage residential growth and enhance natural resource protection through changes in Dover's zoning ordinances and subdivision regulations."

The second Dover-NROC public meeting, on September 26th, was distinctly organizational. NROC facilitators and an auditorium filled with more than 50 residents focused upon the natural resource-related goals listed in Dover's recently updated master plan. The group identified open space protection and minimizing the impacts of development as primary goals, then circulated a sign-up sheet. The Dover Open Lands Committee (OLC) stepped forward to assume a leadership role in completing many of the tasks identified, including the development of a prioritized inventory of the city's remaining open lands based upon their environmental features. The OLC subsequently reorganized into four working groups that closely resembled the tasking suggested by participants at the second NROC public meeting.

In addition, an ad hoc committee formed to address public outreach and education. Comprising members of Dover's Open Lands Committee, Conservation Commission, and Planning Board as well as concerned citizens, the Outreach and Education group successfully applied for and received a \$5,000 grant from NH Estuaries Project to host a series of workshops focusing upon various aspects of

**To be continued...see page 8**

# NH Coastal Program Bulletin

Office of State Planning  
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## The "High Water Mark" in New Hampshire

*"By the law of nature these things are common to all mankind - the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and the buildings, which are not, like the sea, subject only to the law of nations."* Book II of the Institutes of Justinian, 6th Century A.D.

What rights do the public have to use private beaches? This bulletin describes the development of the legal definition of the "high water mark" in New Hampshire, a subject of litigation from 1994-2000, which clarifies this right. The New Hampshire Supreme Court's ruling and subsequent settlement of William Purdie v. Attorney General resolves several questions concerning the definition and location of the high water mark.

"The mean high water mark or line of mean high tide, being the landward boundary of the public trust at New Hampshire's seashores, is located, with respect to beaches, at the place of transition or change-over from wet, hard sand to dry, soft sand. The wet, hard sand area, which is more often than not flowed by high tides, is included in the public trust, while the dry, soft area, which is usually not flowed by high tides, is not public trust land. The location of the mean high water mark is subject to movement on account of natural phenomena such as changes in the slope or contour of the beach"

That was the decision made in 1999 regarding the extent to which the public has the right to use the beaches of

the state.

The definition of the high water mark has changed throughout the years. The increase of public use and the rising cost of shoreline property sparked a debate beginning in the early 1900's. Common law says that the government owns the tidal waters and land beneath them, holding these properties in trust for the use of the public. Under New Hampshire's common law, the public's right to use the beach extends to the "high water mark." However, the meaning of the phrase "high water mark" and its location has been in dispute. Landowners and the public have been at odds as to the location of the "high water mark" and the extent to the public's right to use the beach.

In 1995, the New Hampshire General Court enacted RSA 483-C. That statute defined the "high water mark" as the "furthest landward limit reached by the highest tidal flow" during a nineteen year metonic cycle. Private landowners challenged the law, arguing that it deprived them of private property without compensation. This case, known as the Purdie Case, ended up at the New Hampshire Supreme Court on appeal. In 1999, the Supreme Court held that the common law gave the state a right of ownership and the public a right of use of the seashore up to the ordinary "high water mark."

In setting the "high water mark" at an extraordinary tidal event the court held that the statute was unconstitutional. The Supreme Court remanded the case to the Superior Court. Before the case went to trial, the State and the private landowners entered into a settlement.

In May of 2000, the Supreme Court's Consent Decree settling the case defined the location of the ordinary "high water mark" on New Hampshire's beaches as the area of transition from wet to dry sand and provided that the location of the ordinary "high water mark" may change as conditions on the beach change. The portion of the seashore that is ordinarily flowed by the sea, as evidenced by the wetness of the sand, is public property and may be used by the public for recreational and other public purposes. Private landowners whose property abuts the beach may not exclude the public from this area.

The Consent Decree does not make any determination concerning the ownership of the dry sand beach. As with any other piece of property, a dry sand beach may be either publicly or privately owned. This Consent Decree specifically applies to beaches, not to salt marshes or other tidal areas.

The definition of high water mark as the area of transition between wet and dry sand benefits both the public and the private landowners by establishing a measurable way of determining the extent of the public ownership and the right to use the beach.

The Consent Decree preserves the rights of New Hampshire citizens under the Public Trust Doctrine to use and enjoy their seashore. It confirms the principle underlying the Public Trust Doctrine that the seashore is a valuable resource that belongs to all the people of the state.

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## What Drives the Tides and Other Changes in Sea Level?

Two bulges of water, each being a high tide, exist on the earth's surface. One bulge is caused by the gravitational force of the moon "pulling" on the ocean. The other bulge is caused by centrifugal force, which is created by the rotation of the Earth and moon about one another. To help understand centrifugal force, imagine you're holding a rope tied to a bucket of water. If you begin swinging the bucket in a constant, circular motion, the water will not fall out of the bucket. Centrifugal force pushes the water in an outward direction toward the bottom of the bucket. This same force is what pushes the ocean into a second bulge. As the Earth turns beneath these bulges we observe a pair of high and low tides every 25 hours.

The highest and the lowest tides tend to occur every two weeks around the full and new moons. These full and new moon tides are known as spring tides, (note that the term "spring" has nothing to do with the seasons, but is a reference to these tides "springing" or "leaping" to a higher than average elevation). Spring tides occur when the sun, moon and Earth are aligned, or in "Syzygy," with one another. The opposite of a spring tide is a neap tide, which occurs in between the full and new moon. High tides during these periods are not as high, and low tides are not as low, because

the sun and moon are located at 90 degrees to each other relative to the Earth. Thus, their gravitational forces pull on the ocean in different directions, counteracting one another and resulting in a less dramatic rise and fall of the tide.

One might expect the different spring high tides during the year to rise to the same elevation. However, they do not. The height of the highest tide in each month during a particular year varies because the relative positions of the sun, moon, and Earth are different at the time of different syzygy events.

For example, the distance between the Earth and sun is at a minimum in January, due to the elliptical orbit of the Earth around the sun. At this time the sun's gravitational pull on the oceans is strongest. When a new moon occurs around this time of the year, the enhanced pull of the sun, coupled with the pull of the moon, produces a very high spring tide. And if such an alignment occurs in conjunction with other factors, (e.g. longer period astronomical effects which are repeatable over a 19-year period, also known as the Metonic cycle), the highest spring tide, will result.

Finally, a number of other factors cause some high tides to be higher

than one might expect for astronomical reasons. Variations in wind, barometric pressure, water temperature, and fresh water can change sea levels, independent of the forces that drive the tides. Of course, the timing of these events is important in terms of their effects on tidal height. These effects on sea level can be very large, but they are only as predictable as the weather which causes them.

*Information contained in these bulletins is based on state statutes as of the date of publication. The New Hampshire Coastal Program staff wishes to acknowledge:*

*Former State Representative Deborah Merritt, Dr. Wendall Brown, University of New Hampshire, Brian Connor and Geoffrey French National Ocean Service, New Hampshire Attorney General's Office and others for their contributions to this bulletin.*

*High water mark bulletin text compiled by Verna DeLauer, NH Coastal Program. Tide bulletin text written by Chris Nash, NH Department of Environmental Services. This publication was financed by a grant from the National Oceanic and Atmospheric Administration, Award No. NA170Z2342*





## Continued from page 6...

open space protection and minimizing the impacts of development.

The first Growing Greener workshop, "Balancing Growth, Taxes and Open Space," drew a crowd of more than 70 municipal officials and planners, environmentalists and concerned citizens despite a raging blizzard. Members of the city's planning staff as well as seven out of eight members of the Dover Planning Board attended the workshop. Within two weeks of the event, the Dover Planning Board voted 7-1 in support of a resolution to research bond funding for the protection of open space. The Board members referenced the workshop as having been instrumental in their decision.

The second 'Growing Greener' workshop on "Land Protection and Estate Planning" attracted a group of 60+ area landowners and conservationists. In the seven weeks following the workshop, eight local landowners came forward to seek additional information about conservation easements and other land protection options. Open Lands Committee members responded quickly, meeting with landowners and providing additional information. As of the time of this printing, four of these landowners had taken steps to have their properties appraised to determine the land's conservation value.

Approximately 50 local residents, realtors and area planners attended the third workshop on "Smart Growth: Protecting Our Quality of Life." The workshop offered concrete local examples of smart

growth principles in action such as minimum impact design, mixed-use development, open space subdivisions, infill projects, public transportation planning, and walkable communities. According to the workshop survey, the majority of concerned citizens who attended the workshop left with a greatly enhanced appreciation of both smart growth principles and their community. "I was so impressed by what I heard yesterday that I took the bus to work this morning for the first time," reported one attendee the following day.

The final workshop in the series featured well-known conservation planner Randall Arendt describing "Conservation Subdivision Design as a Tool for Building Community-wide Open Space Networks." This workshop drew an audience of more than 110 planners, municipal board members, and developers from throughout the state of New Hampshire, many of whom requested additional information about open space subdivisions. In fact, the workshop precipitated an exchange on the NH Office of State Planning PlanLink listserv among planners who sought and shared information on zoning regulations designed to encourage the development of conservation subdivisions.

Concurrent with the 'Growing Greener' workshops, the Dover Planning Department established four subcommittees to suggest changes to zoning and subdivision regulations to manage residential growth, promote increased commercial/industrial base, promote open space, and address quality of life.

These Planning Board subcommittees include many citizen volunteers who participated in the NROC program. "This has been a coordinated effort in which city staff and community volunteers have worked hand in hand to initiate change," says Dover Planning Board Chair Ron Cole. "It's good to see volunteer spirit alive and well in Dover."

"We've been working on this for some time," says Dover City Planner Steve Bird. "In fact, we tried to initiate residential zoning changes several years ago, but we were not as successful as we had hoped to be. NROC's involvement in Dover has assisted in moving these action items forward again."

NROC's arrival last September helped stimulate the drive toward additional community involvement in natural resource-based planning in Dover. The full impact of that first meeting and the initiatives that it spawned cannot yet be fully measured - the waves continue to ripple throughout the city and beyond. One thing is certain: Dover will never be the same again.

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NROC coordinates efforts by various organizations providing education and technical assistance to communities in the New Hampshire coastal watershed. Contact Amanda Stone for more info.  
603-364-5324.

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## *\$200,000 More to New Hampshire for Brownfields Projects*

By Joanne McLaughlin, NH Coastal Program

A total of \$14.6 million dollars in Brownfields grants were awarded to assess the contamination of abandoned properties in 80 communities nationwide. "Reclaiming America's brownfields properties is an effective way to help revitalize and reinvigorate our nation's blighted neighborhoods while at the same time preventing urban sprawl," says Christie Whitman, Environmental Protection Agency (EPA) administrator.

On May 20, 2002, Whitman announced that the New Hampshire Coastal Program (NHCP) in the Office of State Planning has been awarded a \$200,000 Supplemental Assistance grant for the Coastal Watershed Brownfields Assessment Demonstration Pilot. This grant will supplement the current NHCP \$200,000 grant. "There was a great deal of competition for these funds here in Region I and the New Hampshire Coastal Program's proposed activities and application proved to be a winner," says Lynne Jennings, EPA representative.

Under the Supplemental grant, NHCP will be expanding its current Brownfields program to include the twenty-five municipalities that form the uplands of the coastal watershed. The Supplemental grant will be used to complete investigations at the Craig Supply site in Durham. In addition, investigations will begin

on a 32-acre site located on Glen Hill Road in Dover, known as the Minichiello property. This property has been identified as a potential recreational site.

New Hampshire has over 500 known sites contaminated with hazardous substances that are not Superfund NPL sites. Due to New Hampshire's industrialized past, the sites are predominately located in or near town/city centers. NHCP, in cooperation with NHDES and the coastal watershed communities, will scour the coastal watershed in an effort to identify potential Brownfield sites that are either municipally owned, abandoned, or under consideration for acquisition by a municipality.

### **SITE INVESTIGATIONS UNDER THE CURRENT PILOT GRANT INCLUDE:**

#### ***Kane-Gonic Brickyard in Rochester***

The goal of that project was to identify and quantify all environmental liabilities for the benefit of future users or purchasers of the property and secure an appropriate liability release from NHDES. The investigations were completed, and the NHDES issued a partial liability release for the non-petroleum issues at the site. The City of Rochester has recently begun a preliminary review of a proposed 7-lot industrial subdivision to make way



for a new industrial park.

#### ***Craig Supply Site in Durham***

The town inherited this land title as a result of the landowner neglecting to pay taxes. Located on the University of New Hampshire's campus, this site was formerly a dry cleaner supply company and consequently, was contaminated by a release(s) of perchloroethylene.

Phase I of the proposed work, included underground storage tank identification; site related contaminant transport in bedrock by performing bedrock fracture evaluation; a receptor survey; natural attenuation potential in groundwater, and an additional source area evaluation.

Phase II of the work which will be covered under the Supplemental grant will include bedrock groundwater monitoring well installation; overburden groundwater monitoring well installation; pump test or pilot test for the feasibility of a proposed remedial approach for the site; additional groundwater sampling for the analysis of natural attenuation; and the preparation of a Remedial Action Plan.



### ***Former Wastewater Treatment Plant and Public Works Garage in Dover***

The Dover site involves redevelopment of the 35-acre site located on the Cocheco River in downtown Dover. Brownfields monies were targeted to better characterize baseline environmental conditions and develop a site-wide Remedial Action Plan to address non-petroleum related contamination issues. Proposed plans for the site include removal of the public works garage,

increased public access and recreational opportunities, and some mixed-use redevelopment. The City has relocated the public works facility from the site.

### ***The Essex Mills in Newmarket***

This 150 years old site is located on the Lamprey River in downtown Newmarket. The goal of this project was to facilitate site development. In February 1999, the Town of Newmarket and the Essex

Group, Inc. concluded an agreement in which the Essex Group, Inc. donated the site to the Town of Newmarket. The site is currently being redeveloped with condominiums. A liability release (Covenant Not To Sue) will be issued soon.

Contact Joanne McLaughlin, 271-2155 for further information, or if you know of sites in your communities that would be eligible for Brownfields funding.

## *Swimming with the Fishes... Well Almost!*

By Brian Mazerski, NH Coastal Program

Coastal program staff spent time in Dover on May 10 observing an annual "rite of passage" at the top of the fish ladder across from the Cocheco Falls Hydroelectric Project. Marine biologist Cheri Patterson and staff of the New Hampshire Fish & Game (F&G) Region 3 office literally "catch" fish at the top of the fish ladder and toss them upstream over a concrete wall into the portion of the Cocheco River above the dam so that they can continue their spawning migration upstream.

Every day for about ten weeks in April, May and June, staff catch up to seven thousand fish during heavy pulses as the fish overcome the barrier at the dam. Past modifications to the hydro plant and dam have made it impossible for river herring and shad species to swim against the high incoming flow at the top of the fish ladder.

This fish ladder allows fish to swim upstream on six gently graded ramps interspersed with resting pools to bypass the combined height of the dam and underlying rock ledge - a total of a couple dozen feet. Even the heartiest of salmon needs a fish ladder here (actually early records show a substantial salmon run occurred in this river before the dam was built). At the top of the last ramp, the ladder joins an enclosed pool called a fish trap, about as big as a large walk in closet. Here the herring and shad are trapped because they cannot jump out of the fish trap against the high water pouring into the fish ladder exit of the Cocheco. Flashboards at the top of the dam structure provide greater

hydro-generation capability, but do not permit these fish species to exit the ladder as designed because of the greater "head" of water. The NH Fish & Game Department has petitioned the Federal Energy Regulatory Commission to amend the plant's license and modify the ladder or remove the flashboards so that fish can swim through unassisted.

The F&G staff use dip nets and seine to collect the fish and count them, thus allowing them to continue their upstream migration to spawn. Cheri and her staff also sample about four hundred fifty fish by collecting scales and lengths of 150 fish three times during the annual spawning run; beginning, middle and end. These fish are measured (generally in the range of 260 to 320 millimeters), identified by sex, and donate some scales (scraped off their sides) for ageing to assure of continual recruitment (arrival of younger fish) and growth of this population. This process is done for each of the six rivers that have fish passage facilities along the coast of New Hampshire.

As they swim upstream, the fish have to navigate some other obstacles - namely accumulated detritus as well as some man-made pollutants. There was an underwater sofa not far from the Central Ave. bridge! Water Country would not require us to pass through garbage to get to the top of the water slides enjoyed by many each summer. Let's all do our part to keep our rivers clean and help fish populations swim naturally.



# NH Estuaries Project News

152 Court Street, Portsmouth, NH | [www.state.nh.us/nhep](http://www.state.nh.us/nhep)  
Cynthia McLaren, Director

## NHEP FUNDING UPDATE

By Sally Soule, NHEP Program Assistant

NHEP announces several funding opportunities for New Hampshire's coastal watershed groups and projects. Grants are available for Estuaries Month events, land protection transaction costs, and community-based environmental projects. More information about each grant program follows.

### **ESTUARIES MONTH 2002: FUNDS FOR LOCAL EVENTS**

For the second year, NHEP offers funds to local community groups to co-sponsor activities that celebrate the cultural and natural history of the coastal watershed. Small grants of up to \$200 are available to support events and projects occurring in September or October. NHEP seeks to fund events with environmental themes such as water quality, smart growth, habitat restoration, biodiversity, and environmental education. Examples of events include river clean-ups, land protection workshops, stewardship projects, nature walks, and more. The goal of the fund is to encourage citizens to experience and learn about the beauty of the watershed's estuaries, rivers, forests, and special places.

Events must be conducted in the New Hampshire coastal watershed. Eligible applicants include municipalities, community groups, land trusts, watershed associations, environmental groups, educational institutions, and regional planning commissions. NHEP will fund the first 20 groups that apply with events fitting the environmental theme of Estuaries Month. Requests for funds must be received by September 1st. To apply for Estuaries Month 2002 funds, and for more information, please contact Sally Soule, NHEP, at 433-7187 or e-mail [sally.soule@rscs.net](mailto:sally.soule@rscs.net).

### **FUNDING AVAILABLE FOR LAND PROTECTION TRANSACTION COSTS**

A new matching grants program offered by NHEP and the Center for Land Conservation Assistance (CLCA) will support costs associated with land protection transactions. The goal of the fund is to support projects that permanently protect important natural resources and significant habitat in the coastal watershed.

Selection Process  
An "Application for Land

Protection Transaction Assistance" must be submitted to the Center for Land Conservation Assistance (CLCA). Properties must meet two or more of the following criteria. When fund availability is limited, preference will be given to projects that meet more than two criteria:

1. Land abuts existing protected land, or provides a critical linkage between protected lands.
2. Land has frontage on a surface water body.
3. Land contains significant wildlife habitat or habitat for rare, threatened, or endangered animal or plant species, or exemplary natural communities
4. Land contains significant wetlands, or contributes to water supply lands.
5. Land has been identified by a municipal or regional master plan, or other land conservation plan as a priority for protection.
6. Interest in land is being acquired at bargain sale price (80% or less of the fair market appraised value) or as a donation

Amount and Schedule of Assistance  
CLCA will reimburse an eligible recipient for up to 50 percent of the cash expenses related to the trans-



action costs of completing a land protection project, up to \$3000 per project. The fund will support the cost of surveys, attorney's fees, land protection staff fees, and other related fees. Appraisal costs are reimbursable under limited conditions.

Applications will be accepted on an ongoing basis starting in June 2002 and continuing until all funds are expended. Projects must be completed before funds are released, but applications may be submitted before projects are completed. Projects completed prior to May 15, 2002, are not eligible for these funds.

To maximize the conservation impact of limited available funding, CLCA asks potential applicants to consider whether the grant is essential to the success of their project when deciding whether or not to apply and deciding the amount requested.

A total of \$40,000 is available for the grants. Applications will be accepted on an ongoing basis.

## HOW TO APPLY

CLCA will provide information and guidance to applicants and will evaluate applications with assistance from a review panel. For further information or to apply to the fund, contact:

Dorothy Tripp Taylor, Director  
Center for Land Conservation  
Assistance  
54 Portsmouth Street

Concord, NH 03301  
(603) 717-7045  
dtaylor@spnhf.org

## NHEP ANNOUNCES 2003 LOCAL GRANTS PROGRAM

This Program provides funding for local groups to conduct locally-based projects that are linked to the NHEP Management Plan. Areas of interest to this Program include water quality, land use and habitat protection, shellfish resources, habitat restoration, and public outreach.

The fund totals \$50,000 with up to \$10,000 available per project. A 50/50 non-federal match is required. Matching funds must at least equal the amount requested. Match can include cash or in-kind services (such as volunteer time donated to the project); however, federal funds or services are not eligible. Preference may be given to projects that can demonstrate over-match.

Projects must be conducted in the New Hampshire Coastal watershed. Eligible applicants include municipalities, community groups, land trusts, watershed associations, environmental groups, educational institutions, and regional planning commissions.

Grantees will be selected through a competitive application process.

For more information or to discuss a project idea and how it relates to the NHEP Management Plan, please contact Sally Soule, NHEP,

at 433-7187 or e-mail:  
sally.soule@rscs.net.

## NHEP LOCAL GRANT PROGRAM APPLICATION REQUIREMENTS PROGRAM DETAILS:

- 50/50 non-federal match required (cash or in-kind services)
- Groups can apply for up to \$10,000
- All approved grantees must submit quarterly reports and a final project report
- One proposal per applicant only
- Project must be in the New Hampshire Coastal Watershed

## APPLICATION DETAILS

- Request for Proposals: released September 1, 2002
- Application Deadline: October 16, 2002
- Project Selection Completed: November 14, 2002
- Projects Begin: January, 2003
- Projects Completed: December 31, 2003



# Coastal Watershed Groundwater Resources Study

By Ted Diers, NHCP Enhancement Grants Coordinator

**M**any coastal watershed communities are concerned with the future of their water supplies. As growth in the seacoast region increases, more and more communities face water shortages. Towns and natural resource managers seek water quantity data to help make planning decisions. To help address this need, NHEP recently provided \$25,000 to fund portions of a multi-year partnership to evaluate water quantity in the coastal watershed. The partners include the NH Geological Survey (NHGS), NH Office of State Planning (OSP), NH Department of Environmental Services (DES), US Geological Survey (USGS) and the communities of southeastern NH.

## Evaluating Sustainability

The \$1.5 million dollar study spans four years and will evaluate the sustainability of ground water resources in southeastern New Hampshire. This effort will provide tools and data for communities, planners and industries to make informed decisions about water supply and plan for growth. Specifically, the project will develop estimates of regional ground water availability, estimate regional water use, establish an enhanced water resources network to provide watershed decision-makers with useful data, and develop a regional ground water model to evaluate the effects of growth and alternative water resource management strategies. The project will provide information and services to all 42 communities in the coastal watershed.

During the study, the partners will evaluate data from a variety of sources including monitoring wells, basic hydrologic data, surficial geology maps and other data for the study area. The partners will also evaluate a modeling tool for water supply planning. Towns in the study area will have access to data developed for their community on historic water use and supply. A report describing water use by user and land use type in each community will be developed. The project will also provide an estimation of water supply based on avail-

able data and professional judgment.

## Project Development: A Collaborative Approach

Several advisory groups were convened to assist the partners in developing the project's scope, work plan, and budget. The advisory groups also evaluated components of the project including modeling, data collection, community participation, water use assessment, and the budget. The groups were composed of representatives from a wide range of interests. A Project Advisory team will be set up to provide long-term guidance to the project. The partners feel the various advisory groups have helped ensure that the project is relevant, technically sound, and useful to the communities.

## Funding

Funds for the project were generated from a variety of sources. The US Geological Survey, NH DES, NHCP, NHEP, and the communities will all provide funds. Congressman Sununu and his staff are seeking a congressional appropriation for the Federal Fiscal Year 2003 budget. NHEP funds will be used primarily to support data gathering efforts.

## Data Collection Begins

The project kicked-off in May and over the past few months, the NH Geologic Survey and DES have refined their data collection portion of the project, including: surficial geology, groundwater monitoring data database and well network, identification of large water users, and water supply profile for each community. The initial "data mining" that will identify existing groundwater information, and the digitizing of surficial geology maps will begin this summer.

**For more information about the project contact  
Dave Wunsch, State Geologist 603-271-6482.**



## Interview with Phil Trowbridge, Coastal Watershed Scientist

By Rachel French, NHEP Planning Technician

Phil Trowbridge is the Coastal Watershed Scientist working for the New Hampshire Estuaries Project (NHEP) and New Hampshire Department of Environmental Services (NHDES). I recently spoke with Phil about this position and his role in the management of our estuaries.

### WHAT DOES A COASTAL WATERSHED SCIENTIST DO?

In New Hampshire's estuaries and coastal watershed, there are at least twenty on-going monitoring programs. The result is a diverse mass of data that, if organized, could provide extremely valuable information. My job is to synthesize and distill the information into manageable and comprehensible indicators of estuarine condition. More than forty indicators will be used to show status and

trends in the estuaries. I am also responsible for reviewing and updating the current NHEP Monitoring Plan.

### WHAT IS THE CONNECTION BETWEEN NHDES AND NHEP REGARDING YOUR POSITION?

I am under contract with NHDES to work for NHEP. This sounds confusing but is simple. For NHDES, I prepare the coastal section of New Hampshire's Water Quality Report to Congress. And for the NHEP, I conduct water quality assessments for the indicators of estuarine water quality. There is a big overlap and only a slight difference in my responsibilities to each agency.

### WHO CAN USE THE INFORMATION THAT YOU COLLECT?



The main reason for collecting this information is to monitor environmental status and trends in the estuaries. Using this information, we can track the cumulative effects of our restoration and pollution prevention efforts. State regulators, not-for-profit groups, concerned citizens and anyone who has an interest in the estuaries can use this information.

### WHAT IS THE MOST INTERESTING OR ENJOYABLE ASPECT OF YOUR JOB?

Being able to work with interesting people and subjects. It has been interesting to research shellfish in the Great Bay, learn about oyster biology and the complex factors that effect oyster survival, such as disease and recruitment.

## NHEP to Host Coastal Watershed Smart Growth Roundtable

By Sally Soule, NHEP Program Assistant

Save the date! On September 26, 2002 coastal watershed municipal officials and decision makers will have an opportunity to attend a hands-on, interactive roundtable featuring local examples of successful Smart Growth initiatives.

The Roundtable will feature keynote speaker Mark Eyerman of Planning Decisions, Inc. who will talk about Smart Growth principles and how to make them work in your community. The morning ses-

sion will include presentations about local Smart Growth projects. A working lunch will include a presentation from the Natural Resources Outreach Coalition (NROC). In the afternoon, interactive workshops will provide tools attendees can use in their communities to initiate, enhance or encourage Smart Growth projects.

The conference is free and lunch will be provided. A limited number of spots are available, and NHEP

will accept registrations from municipal officials first. All others will be filled in the following order: community groups (watershed associations, land trusts, etc.), state agencies, and federal agencies. For more information and a registration form, please contact Sally Soule, NHEP, (603) 433-7187. (Location not determined as of newsletter press date. Contact NHEP for this information.)

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2 1/2 Beacon Street  
Concord, NH 03301

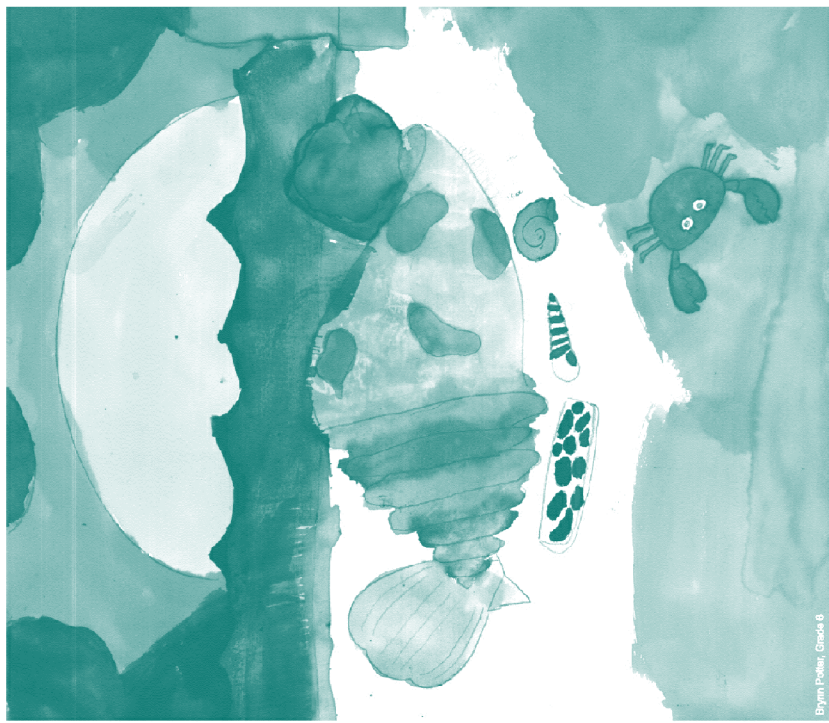
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# NH Coastal Clean-up

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Byron Palmer, Grade 6

